

CLAIMS

What is claimed is:

- 1 1. A color calibration method, comprising:
2 rendering a color image;
3 in response to a user selecting an adjustment to a first color in the image,
4 making a perceptually uniform adjustment to the first color in the image; and
5 rendering an adjusted color image reflecting the adjustment made to the first
6 color in the image.

- 1 2. The method of Claim 1, further comprising:
2 in response to a user selecting an adjustment to a second color in the
3 adjusted image, making a perceptually uniform adjustment to the second color in the
4 adjusted image; and
5 rendering a second adjusted color image reflecting the adjustment made to
6 the second color in the adjusted image.

- 1 3. The method of Claim 1, wherein rendering a color image comprises
2 printing the color image and rendering an adjusted color image comprises printing
3 the adjusted color image.

- 1 4. The method of Claim 2, wherein the second color is the same as the
2 first color.

- 1 5. A color calibration method, comprising:
2 rendering a color image;
3 displaying a palette of memory colors appearing in the image;
4 displaying a menu of memory color adjustments;
5 in response to a user selecting an adjustment to a first memory color in the
6 image, making a perceptually uniform adjustment to the first memory color in the
7 image; and
8 rendering an adjusted color image reflecting the adjustment made to the first
9 memory color in the image.

1 6. The method of Claim 5, further comprising:
2 in response to a user selecting an adjustment to a second memory color in the
3 adjusted image, making a perceptually uniform adjustment to the second memory
4 color in the adjusted image; and
5 rendering a second adjusted color image reflecting the adjustment made to
6 the second memory color in the adjusted image.

1 7. The method of Claim 5, wherein rendering a color image comprises
2 printing the color image and rendering an adjusted color image comprises printing
3 the adjusted color image.

1 8. The method of Claim 6, wherein the second memory color is the same
2 as the first memory color.

1 9. A color calibration method, comprising:
2 rendering a color image;
3 prompting a user to select a first memory color appearing in the image;
4 prompting the user to select an adjustment to the selected first memory color;
5 in response to a user selecting an adjustment to the selected first memory
6 color, making a perceptually uniform adjustment to the selected first memory color;
7 and
8 rendering an adjusted color image reflecting the adjustment made to the
9 selected first memory color.

1 10. The method of Claim 9, further comprising:
2 prompting the user to select a second memory color appearing in the adjusted
3 image;
4 prompting the user to select an adjustment to the selected second memory
5 color;
6 in response to the user selecting an adjustment to the selected second
7 memory color, making a perceptually uniform adjustment to the selected second
8 memory color; and

9 rendering a second adjusted color image reflecting the adjustment made to
10 the selected second memory color.

1 11. The method of Claim 10, wherein the selected second memory color is
2 the same as the selected first memory color.

1 12. A color calibration method, comprising:
2 printing a color image;
3 displaying a palette of memory colors appearing in the image;
4 displaying a menu of memory color adjustments;
5 in response to a user selecting an adjustment to a memory color in the image,
6 making a perceptually uniform adjustment to the selected memory color; and
7 printing an adjusted color image reflecting the adjustment made to the
8 selected memory color.

1 13. A color calibration method, comprising:
2 printing a color image;
3 prompting a user to select a memory color appearing in the image;
4 prompting the user to select an adjustment to the selected memory color;
5 in response to the user selecting a memory color, identifying the selected
6 memory color in a perceptually uniform color modeling space;
7 in response to the user selecting an adjustment to the selected memory color,
8 adjusting the identified memory color in the perceptually uniform color modeling
9 space;
10 transforming the adjusted memory color in the perceptually uniform color
11 modeling space to a color in a printer color modeling space; and
12 printing an adjusted color image reflecting the adjustment made to the
13 selected memory color.

1 14. The method of Claim 13, further comprising prompting the user to select
2 the color image and wherein printing a color image comprises printing the selected
3 color image.

1 15. A color calibration method, comprising:
2 storing a color image in an RGB color modeling space;
3 printing the color image;
4 prompting a user to select a memory color appearing in the image;
5 prompting the user to select an adjustment to the selected memory color;
6 in response to the user selecting a memory color, transforming an RGB model
7 color value representing the selected memory color to a CIE Lab model color value;
8 in response to the user selecting an adjustment to the memory color, adjusting
9 the CIE Lab model color value;
10 transforming the adjusted CIE Lab model color value to a CMYK model color
11 value; and
12 printing an adjusted color image based on the CMYK model color value.

1 16. The method of Claim 15, further comprising, after transforming the
2 CIE Lab model color value to a CMYK model color value, smoothing a discontinuity in
3 an LUT of CMYK color values associated with the transformation of the adjusted
4 CIE Lab model color value to the CMYK model color value.

1 17. A computer readable medium having instructions thereon for:
2 rendering a color image;
3 in response to a user selecting an adjustment to a first color in the image,
4 making a perceptually uniform adjustment to the first color in the image; and
5 rendering an adjusted color image reflecting the adjustment made to the first
6 color in the image.

1 18. The medium of Claim 17, further comprising instructions for:
2 in response to a user selecting an adjustment to a second color in the
3 adjusted image, making a perceptually uniform adjustment to the second color in the
4 adjusted image; and
5 rendering a second adjusted color image reflecting the adjustment made to
6 the second color in the adjusted image.

1 19. The medium of Claim 17, wherein the instructions for rendering a color
2 image comprise instructions for printing the color image and rendering an adjusted
3 color image comprises printing the adjusted color image.

1 20. The medium of Claim 18, wherein the second color is the same as the
2 first color.

1 21. A computer readable medium having instructions thereon for:
2 rendering a color image;
3 displaying a palette of memory colors appearing in the image;
4 displaying a menu of memory color adjustments;
5 in response to a user selecting an adjustment to a first memory color in the
6 image, making a perceptually uniform adjustment to the first memory color in the
7 image; and
8 rendering an adjusted color image reflecting the adjustment made to the first
9 memory color in the image.

1 22. The medium of Claim 21, further comprising instructions for:
2 in response to a user selecting an adjustment to a second memory color in the
3 adjusted image, making a perceptually uniform adjustment to the second memory
4 color in the adjusted image; and
5 rendering a second adjusted color image reflecting the adjustment made to
6 the second memory color in the adjusted image.

1 23. The medium of Claim 21, wherein the instructions for rendering a color
2 image comprise instructions for printing the color image and rendering an adjusted
3 color image comprises printing the adjusted color image.

1 24. The medium of Claim 22, wherein the second color is the same as the
2 first color.

1 25. A computer readable medium having instructions thereon for:
2 rendering a color image;
3 prompting a user to select a first memory color appearing in the image;

4 prompting the user to select an adjustment to the selected first memory color;
5 in response to a user selecting an adjustment to the selected first memory
6 color, making a perceptually uniform adjustment to the selected first memory color;
7 and
8 rendering an adjusted color image reflecting the adjustment made to the
9 selected first memory color.

1 26. The medium of Claim 25, further comprising instructions for:
2 prompting the user to select a second memory color appearing in the adjusted
3 image;
4 prompting the user to select an adjustment to the selected second memory
5 color;
6 in response to the user selecting an adjustment to the selected second
7 memory color, making a perceptually uniform adjustment to the selected second
8 memory color; and
9 rendering a second adjusted color image reflecting the adjustment made to
10 the selected second memory color.

1 27. The medium of Claim 26, wherein the second color is the same as the
2 first color.

1 28. A computer readable medium having instructions thereon for:
2 printing a color image;
3 displaying a palette of memory colors appearing in the image;
4 displaying a menu of memory color adjustments;
5 in response to a user selecting an adjustment to a memory color in the image,
6 making a perceptually uniform adjustment to the selected memory color; and
7 printing an adjusted color image reflecting the adjustment made to the
8 selected memory color.

1 29. A computer readable medium having instructions thereon for:
2 printing a color image;
3 prompting a user to select a memory color appearing in the image;
4 prompting the user to select an adjustment to the selected memory color;

5 in response to the user selecting a memory color, identifying the selected
6 memory color in a perceptually uniform color modeling space;
7 in response to the user selecting an adjustment to the selected memory color,
8 adjusting the identified memory color in the perceptually uniform color modeling
9 space;
10 transforming the adjusted memory color in the perceptually uniform color
11 modeling space to a color in a printer color modeling space; and
12 printing an adjusted color image reflecting the adjustment made to the
13 selected memory color.

1 30. The medium of Claim 29, further comprising instructions for prompting
2 the user to select the color image and wherein printing a color image comprises
3 printing the selected color image.

1 31. A computer readable medium having instructions thereon for:
2 storing a color image in an RGB color modeling space;
3 printing the color image;
4 prompting a user to select a memory color appearing in the image;
5 prompting the user to select an adjustment to the selected memory color;
6 in response to the user selecting a memory color, transforming an RGB model
7 color value representing the selected memory color to a CIE Lab model color value;
8 in response to the user selecting an adjustment to the memory color, adjusting
9 the CIE Lab model color value;
10 transforming the adjusted CIE Lab model color value to a CMYK model color
11 value; and
12 printing an adjusted color image based on the CMYK model color value.

1 32. The medium of Claim 31, further comprising instructions for, after
2 transforming the CIE Lab model color value to a CMYK model color value, smoothing
3 a discontinuity in an LUT of CMYK color values associated with the transformation of
4 the adjusted CIE Lab model color value to the CMYK model color value.

1 33. A computer readable medium storing:
2 a color image;
3 a palette of memory colors appearing in the image;
4 controls for adjusting a color on the palette; and
5 programming for making perceptually uniform adjustments to the color image
6 corresponding to the adjustment controls.

1 34. The medium of Claim 33 storing programming for:
2 rendering the color image;
3 in response to a user selecting a color adjustment from the controls for
4 adjusting a color, making a perceptually uniform adjustment to the color image
5 corresponding to the color adjustment; and
6 rendering an adjusted color image.

1 35. A printer, comprising:
2 a print engine;
3 a user interface; and
4 a controller operatively coupled to the print engine and the user interface, the
5 controller having a processor and a memory storing a color image, a palette of
6 memory colors appearing in the image, controls for adjusting a color on the palette,
7 and programming for making perceptually uniform adjustments to the color image
8 corresponding to the adjustment controls.

1 36. The printer of Claim 35, wherein the controller memory stores
2 programming for:
3 printing the color image;
4 in response to a user selecting a color adjustment from the controls for
5 adjusting a color, making a perceptually uniform adjustment to the color image
6 corresponding to the color adjustment; and
7 printing an adjusted color image

1 37. The printer of Claim 36, wherein the controller memory stores
2 programming for displaying the palette of memory colors on the user interface and
3 displaying the controls for adjusting a color on the user interface.

1 38. A printing system, comprising:
2 a computer having a processor and a memory storing a color image, a palette
3 of memory colors appearing in the image and controls for adjusting a color on the
4 palette; and
5 a printer operatively coupled to the computer, the printer comprising a print
6 engine and a controller operatively coupled to the print engine, the controller having
7 a processor and a memory storing programming for making perceptually uniform
8 adjustments to the color image corresponding to the adjustment controls on the
9 computer.

1 39. A color calibration system, comprising:
2 a means for rendering a color image;
3 a means for, in response to a user selecting an adjustment to a color in the
4 image, making a perceptually uniform adjustment to the color in the image; and
5 a means for rendering an adjusted color image reflecting the adjustment made
6 to the color in the image.